Element Materials Technology
Unit Three, Wednesbury One
Black Country New Road
Wednesbury
WS10 7NZ, UK

0121 506 7500
Element.com

BS EN 1192:2000

Test of: 54mm single door set

Doors – Classification of strength requirements

A Report To:
Morland
Buttington Cross Ent Park, Welshpool, Powys. SY21 8SL

Document Reference:
WIL 415947

Date: 10/09/2019

Copy: 1

Issue No.: 1

Element Materials Technology Wednesbury Limited
Fire & Building Products
Registered in England & Wales
Registered Office: 10 Lower Grosvenor Place, London, SW1W 0EN, United Kingdom
Company Registration No: 11446650

Element Materials Technology
Unit Three, Wednesbury One
Black Country New Road
Wednesbury
WS10 7NZ, UK

0121 506 7500
Element.com

TEST CONCLUSIONS

Samples of:
Manufacturer Morland
Product Single doorset
Model 54mm single doorset

have been tested in accordance with: BS EN 1192:2000.
By Element Materials Technology, a UKAS accredited Testing Laboratory (No. 0621)

At Unit 3 Wednesbury One, Black Country New Road, Wednesbury, WS10 7NZ.
Results and comments as detailed below:

Clause	Description	Compliance
4.1	**General – Class 4- SEVERE Duty**	**Yes**
4.2	Resistance to vertical load	YES
4.3	Resistance to static torsion	YES
4.4	Resistance to soft and heavy body impact	YES
4.5	Resistance to hard body impact	YES

No inferences can be made regarding performance against other requirements of this standard

Tests marked " N/A" are not applicable to the sample under test.
Tests marked "N/T" were not applied to the sample under test

Element Materials Technology
Unit Three, Wednesbury One
Black Country New Road
Wednesbury
WS10 7NZ, UK

0121 506 7500
Element.com

AUTHORISATION

Tests performed by: Josh Ratcliffe, Test Engineer

Report issued by: Chris Bryan, Senior Test Engineer

Signed

Date 10th September 2019

For and on behalf of Element Materials Technology

Report authorised by: Mark West, Door & Window Laboratory Manager

Signed 

Date 10th September 2019

For and on behalf of Element Materials Technology

Report issued: 10 September 2019

UKAS TESTING
0621

NOTE.
Tests marked "Not UKAS Accredited" are not covered by the Laboratory UKAS accreditation schedule.

Tests marked NT were not tested
Tests marked NA are not applicable to the product on test.

The laboratory has tested the product supplied by the client as sampled in accordance with their own requirements

Element Materials Technology
Unit Three, Wednesbury One
Black Country New Road
Wednesbury
WS10 7NZ, UK

0121 506 7500
Element.com

CONTENTS **PAGE NO.**

Element Materials Technology
Unit Three, Wednesbury One
Black Country New Road
Wednesbury
WS10 7NZ, UK

0121 506 7500
Element.com

TEST DETAILS

CLIENT DETAILS

Company name	Morland
Address	Buttington Cros Ent Park Welshpool Powys SY21 8SL
Contact	Mike Bebb

ORDER DETAILS

Order number	MP0577
Dated	19/06/2019

SAMPLE DETAILS

Outer frame	990 x 2081 x 100mm
Opening leaves	924 x 2040 x 54mm
Configuration	Single doorset
Material	Timber
Details of Hardware	
Hinges	3No. Zoo Ball bearing hinges. Ref: ZHSS243RS
Lock	Zoo 72mm sash 52mm backset. Ref: ZDL005RSS
Handles	Zoo Levers on Rose 19mm DIA 304 Grade SSS. Ref: ZCS030SSS

TEST DETAILS

Test specification	BS EN 1192 :2000
Full test	Yes
Test to clauses	All
Test methods	BS EN 12046-2:2000 operating forces BS EN 947:1999 vertical load BS EN 948:1999 static torsion BS EN 949:1999 soft body impact BS EN 950:1999 hard body impact BS EN 948:1999 strength of safety devices
Sample received	27/06/2019
Test started	01/07/2019
Test completed	01/07/2019
Special Test requirements	
Other reports to be used in conjunction with this report	

Element Materials Technology
Unit Three, Wednesbury One
Black Country New Road
Wednesbury
WS10 7NZ, UK

0121 506 7500
Element.com

TEST PROCEDURE

Introduction	This test report should be read in conjunction with the Standard BS EN 1192:2000. The specimens were judged on their ability to comply with the performance criteria as required in BS EN 1192:2000, with test methods BS EN 12046-2:2000, BS EN 947:1999, BS EN 948:1999, BS EN 949:1999, BS EN 950:1999 classified in accordance with BS EN 1191:2000.
Instruction To Test	Initial requirement was for a class 4 as defined in BS EN 1192:2000.
Test Specimen Construction	A description of the test construction is given in the Schedule of Components. The description is based on a detailed survey of the specimens and information supplied by the sponsor of the test.
Installation	The doorset was supplied mounted within a timber sub-frame of nominal section 75 x 100mm fitted flush with the exterior face, in accordance with the clients fitting instructions.
Sampling	The samples were not independently witnessed or selected and were provided direct from the test sponsor.
Test Climate	The sample was conditioned in the laboratory in the range 15-30 °C and 25-75% humidity. The temperature and humidity in the lab was maintained in the range 24-25.3°C and 40.4-61% humidity for the duration of the test.

Element Materials Technology
Unit Three, Wednesbury One
Black Country New Road
Wednesbury
WS10 7NZ, UK

0121 506 7500
Element.com

INITIAL OBSERVATIONS

The internal face of the sample

Sample handle

Sample central lock

Sample hinge

Element Materials Technology
Unit Three, Wednesbury One
Black Country New Road
Wednesbury
WS10 7NZ, UK

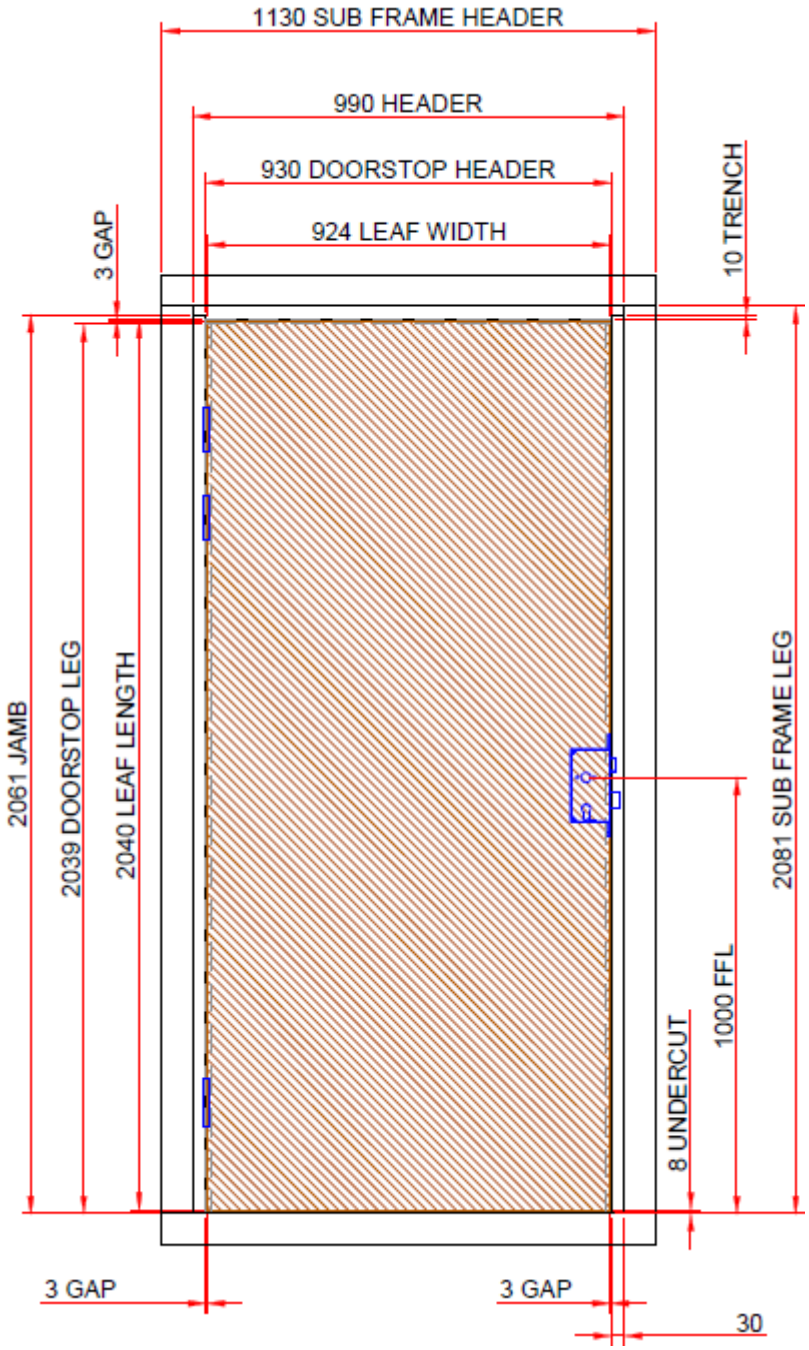
0121 506 7500
Element.com

Element Materials Technology
Unit Three, Wednesbury One
Black Country New Road
Wednesbury
WS10 7NZ, UK

0121 506 7500
Element.com

TEST SPECIMEN

Figure 1- General Elevation of Test Specimen (External Face)



Do not scale. All dimensions are in mm

Element Materials Technology
Unit Three, Wednesbury One
Black Country New Road
Wednesbury
WS10 7NZ, UK

0121 506 7500
Element.com

SCHEDULE OF COMPONENTS

(Refer to Figures 1 to 3)
(All values are nominal unless stated otherwise)
(All other details are as stated by the sponsor)

Variants

None

Item		Description
1. Door frame head		
Reference	:	Plant on
Material	:	MR MDF
Density	:	680kg/m^3 (stated)
Section size	:	30mm thick
Rebate	:	32 x 12mm MR MDF doorstop
Fixing jamb to head joints		
i. type	:	Confirmat screws
ii. size	:	5 x 50mm
iii. quantity	:	4No.
Details of adhesive	:	PVA Glue
2. Door frame jamb		
Reference	:	Plant on
Material	:	MR MDF
Density	:	680kg/m^3 (stated)
Section size	:	30mm thick
Rebate	:	32 x 12mm MR MDF doorstop
3. Door frame weather seals		
Description	:	Exitex Twin Flipper
Manufacturer	:	Exitex
Reference	:	1.10.0500
Fixing method	:	Self-adhesive
Position	:	Jamb & header
Continuity	:	Uninterrupted by hardware
4. Door leaf		
Supplier/manufacturer	:	Morland / Egger
Overall leaf size	:	2040 x 924 x 44mm
5. Door leaf core		
Supplier/manufacturer	:	Egger
Material	:	Cellulosic material
Density	:	540kg/m^3 (stated)
Thickness	:	44 / 54mm

6. Door leaf lippings

Item		Description
Position	:	Fitted to all four edges
Material	:	ABS
Density	:	1150kg/m3 (stated)
Details of adhesive	:	Pur

7. Hinges

Supplier/manufacturer	:	Zoo
Description	:	Ball bearing
Reference	:	ZHSS243RS
Primary material	:	S. Steel grade
Size of knuckle	:	14mm
Size of blades	:	100 x 30mm
Quantity	:	3No.
Intumescent protection (if applicable)	:	0.8mm graphite
Position of hinges		
i. top hinge	:	200mm from top of door to top of hinge
ii. middle hinge	:	400mm from top of door to top of hinge
iii. bottom hinge	:	1738mm from top of door to top of hinge
Fixing hinge to doorleaf		
i. type	:	Stainless steel screw
ii. size	:	2No. 5 x 30mm screws & 2No. 5 x 60mm screws
iii. quantity	:	4No.
Fixing hinge to frame		
i. type	:	Stainless steel screw
ii. size	:	5 x 25mm
iii. quantity	:	4No.

8. Lock

Supplier/manufacturer	:	Zoo
Description	:	72mm sash 52mm backset
Reference	:	ZDL005RSS
Face plate size	:	20 x 230mm
Position	:	1000mm FFL
Fixings		
i. type	:	Screw
ii. size	:	3 x 20mm
iii. quantity	:	2No.

9. Lock Keeps

Element Materials Technology
Unit Three, Wednesbury One
Black Country New Road
Wednesbury
WS10 7NZ, UK

0121 506 7500
Element.com

Item		Description
Supplier/manufacturer	:	Zoo
Description	:	Locking keep
Reference	:	ZUKS364SS
Material	:	Stainless steel
Fixing keeps to frame		
i. type	:	Screw
ii. size	:	3 x 20mm
iii. quantity	:	3No.

10. Lever handles

Supplier/manufacturer	:	Zoo
Description	:	Levers on Rose 19mm DIA 304 Grade SSS
Reference	:	ZCS030SSS
Material	:	304 GRADE SSS
Lever length	:	125mm
Fixings		
i. type	:	Bolts & face fixing screws
ii. size	:	2No. 8mm Bolt through fixings 4No. Screws to face of door
iii. quantity	:	6No.

11. Door closer

Supplier/manufacturer	:	Briton
Description	:	Arm closer
Reference	:	11208
Overall size	:	236 x 38 x 60mm
Fixing device to doorleaf		
i. type	:	Stainless steel screws
ii. size	:	4 x 25mm
iii. quantity	:	4No.
Fixing device to frame		
i. type	:	Stainless steel screws
ii. size	:	4 x 50mm
iii. quantity	:	2No.

Element Materials Technology
Unit Three, Wednesbury One
Black Country New Road
Wednesbury
WS10 7NZ, UK

0121 506 7500
Element.com

PERFORMANCE CRITERIA & TEST RESULTS

Clause	Result	Pass/Fail
BS6375-2 6.2 Operating forces	The average force required to enable the sample to latch must not exceed those defined in table 1 of BS EN 12217, Class 1 (75N) for external doorsets & class 2 (50N) for internal doorsets. The average force or torque required to operate the hardware must not exceed those defined for the relevant class in table 1 on BS EN 12217, Class 1 (100N or 10Nm) for external doorsets & class 2 (50N or 5Nm) for internal doorsets). The average force required to commence and maintain motion must not exceed those defined for the relevant class in table 1 on BS EN 12217, Class 1 (75N) for external doorsets & Class 2 (50N) for internal doorsets The sample met the requirements of Class 2. An average force of 11.6N was required to latch the sample. An average force of 27.8N was required to disengage and 0N was required to engage the hardware. An average torque of 0Nm was required to lock and 0Nm was required to unlock the doorset. An average force of 12N was required to commence and maintain motion	**PASS CLASS 2**
Clause 4.2 Resistance to vertical load	.The doorset was tested in accordance with EN 947, under a load of 1000N as required by Class 4 of EN 1192, with a preload of 200N. To achieve the requirements of the class the resultant residual deformation should not exceed 1mm, and the specimen should continue to operate normally. A load of 1000N was applied, and the doorset continued to operate normally. The sample met the requirements of Class 4. The deflection under full load was 2.31mm, and the residual deflection was 0.22mm.	**PASS CLASS 4**
Clause 4.3 resistance to static torsion	The doorset was tested in accordance with EN 948, under a load of 350N as required by Class 4 of EN 1192, with a preload of 200N. To achieve the requirements of the class the resultant residual deformation should not exceed 2mm, and the specimen should continue to operate normally. A load of 350N was applied, and the doorset continued to operate normally. The sample met the requirements of Class 4. The deflection under full load was 7.65mm, and the residual deflection was 0.88mm.	**PASS CLASS 4**
Clause 4.4 Resistance to soft and heavy body impact	The doorset was tested in accordance with EN 949, a soft & heavy body impact of 180J was applied as required for class 4. To achieve the requirements of the class the resultant residual deformation in flatness should not exceed 2mm, and the specimen shall continue to operate normally. The sample met the requirements of class 4, with a residual deformation of 0mm on the internal face, and a residual deformation of 0mm on the external face. No damage was observed during the test	**PASS CLASS 4**

Clause	Result	Pass/Fail
Clause 4.5 Resistance to hard body impact	The doorleaf was tested in accordance with EN 950, hard body impacts of 8J were applied as required for class 4. To achieve the requirements of the class the mean value of the diameters of indentation should not exceed 20mm, and the mean values of the depths of indentation should not exceed 1.0mm, with the maximum depth not exceeding 1.5mm. The sample met the requirements of class 4. The mean value of the depth of indentation was 0.1mm. The maximum value of the depth of indentation was 0.5mm. The mean value of the diameter of indentation was 8.27mm. No damage was observed during the test.	**PASS CLASS 4**

Element Materials Technology
Unit Three, Wednesbury One
Black Country New Road
Wednesbury
WS10 7NZ, UK

0121 506 7500
Element.com

CONCLUSIONS

Evaluation against objective	The sample as provided by the client was subjected to operational & strength testing in accordance with BS EN 1192:2000 and achieved the requirements of Class 4.
Observations & comments	

LIMITATIONS

Limitations	The results relate only to the behaviour of the specimens of the element of construction under the particular conditions of test. They are not intended to be the sole criteria for assessing the potential performance of the element in use, nor do they reflect the actual behaviour in use.
Range of door assemblies covered by this report	It is our opinion that the range of door assemblies covered by this report are limited to the following ▪ Assemblies with identical hardware fitted no further apart than in the tested assembly ▪ Assemblies of the same or smaller overall dimensions to the tested assembly
Uncertainty of Measurement	The uncertainties of measurements calculated for a confidence level of 95% throughout these tests are within the limits of these tolerances. The standard specifies the following tolerances ▪ Forces: ±2% ▪ Distances: ±1mm for tape measures ± 0.01mm for dial gauges ▪ Times: ±5s

Element Materials Technology
Unit Three, Wednesbury One
Black Country New Road
Wednesbury
WS10 7NZ, UK

0121 506 7500
Element.com

REVISION HISTORY

This issue of the report replaces all previous issues that are now withdrawn.

Issue No :	**Re - Issue Date :**
Revised By:	**Approved By:**
Reason for Revision:	

END OF REPORT